Cassette car radio

79DC112/00R

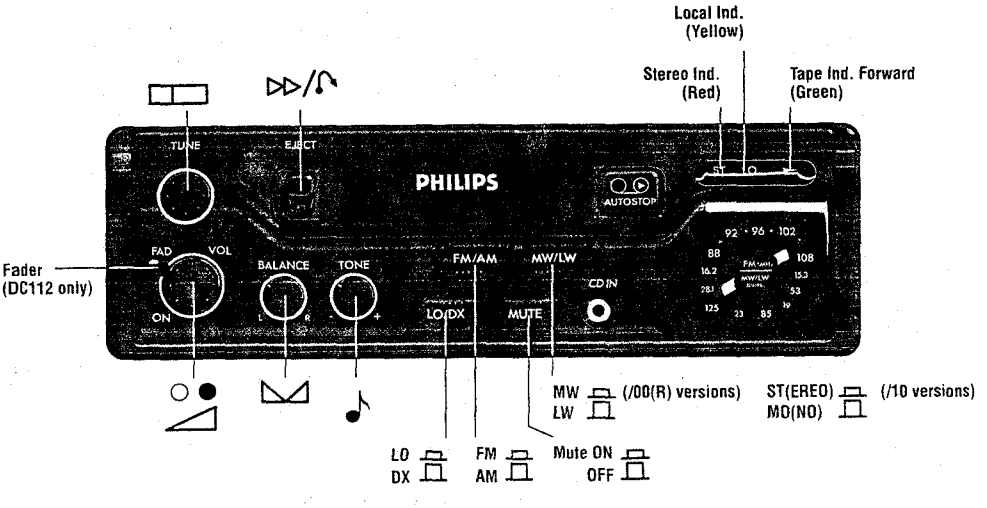
Service
Service
Service

For repair information of the cassette deck see Service Manual of Car cassette deck TN-301NY

Service Manual

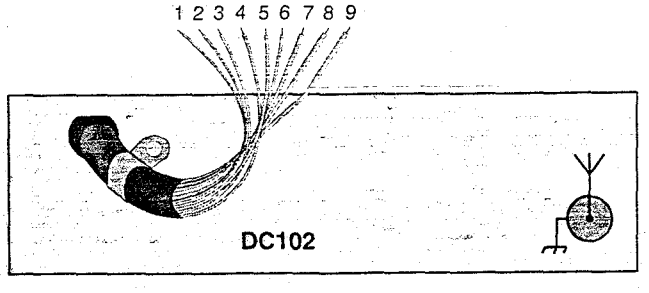
FRONT

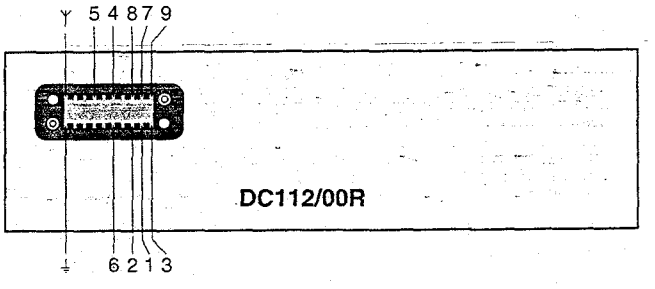
12 V



REAR

1. Speaker Front Right (grey)
2. Front/Rear Right Return (purple)
3. Speaker Rear Right (blue)
4. +14.4VDC (red)
5. Automatic Aerial (orange)
6. Supply Ground (black)
7. Speaker Front Left (green)
8. Front/Rear Left Return (white)
9. Speaker Rear Left (brown)





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4822 725 23607

CS 35 180

PHILIPS

(GB) TECHNICAL DATA

General

Power supply voltage	: +14.4 VDC
Dimensions (w x d x h)	: 178 x 152 x 50 mm
Power consumption	: < 3 A

Radio

FM	: 87.5 – 108 MHz
MW	: 520 – 1620 kHz
LW (DC102/00, DC112/00R)	: 153 – 281 kHz
IF-FM	: 10.7 MHz
IF-AM	: 455 kHz
Limiting point α – 3 dB	: 14 µV ± 6 µV
Sensitivity to 26 dB S/N	: ≤ 18 µV FM
	: ≤ 50 µV MW
	: ≤ 178 µV LW

Cassette player TN301-NY

Number of tracks	: 2
Tape speed	: 4.76 cm/sec
Wow & Flutter	: ≤ 0.35%
Cross talk	: ≥ 35 dB

Amplifier

Output power (D ≤ 10%)	: 2 x ≥ 4.1W/4 Ω
Cross talk	: ≥ 60 dB
Tone control	: 9 dB at 10 kHz

CD

CD input sensitivity	: 160 mV
Frequency range	: ≤ 50 Hz - ≥ 15 kHz
Crosstalk suppression	: ≥ 60 dB

(NL) TECHNISCHE GEGEVENS

Algemeen

Voedingsspanning	: +14,4 VDC
Afmetingen (b x d x h)	: 178 x 152 x 50 mm
Stroom gebruik	: < 3 A

Radio

FM	: 87,5 – 108 MHz
MW	: 520 – 1620 kHz
LW (DC102/00, DC112/00R)	: 153 – 281 kHz
MF-FM	: 10,7 MHz
MF-AM	: 455 kHz
Begrenzing α – 3 dB	: 14 µV ± 6 µV
Gevoeligheid voor 26 dB S/R	: ≤ 18 µV FM
	: ≤ 50 µV MW
	: ≤ 178 µV LW

Cassette speler TN301-NY

Aantal sporen	: 2
Bandsnelheid	: 4,76 cm/sec
Wow & Flutter	: ≤ 0.35%
Overspraak	: ≥ 35 dB

Versterker

Uitgangsvermogen (D ≤ 10%)	: 2 x ≥ 4.1W/4 Ω
Overspraak	: ≥ 60 dB
Toonregeling	: 9 dB bij 10 kHz

CD

CD ingangsgevoelighheid	: 160 mV
Frequentiebereik	: ≤ 50 Hz - ≥ 15 kHz
Overspraakdemping	: ≥ 60 dB

(F) CARACTERISTIQUES TECHNIQUES

Généralités

Allimentation	: +14,4 VDC
Dimensions (l x p x h)	: 178 x 152 x 50 mm
Consomation	: < 3A

Radio

FM	: 87,5 – 108 MHz
PO	: 520 – 1620 kHz
GO (DC102/00, DC112/00R)	: 153 – 281 kHz
FI-FM	: 10,7 MHz
FI-AM	: 455 kHz
Limite α – 3 dB	: 14 µV ± 6 µV
Sensibilité à 26 dB S/B	: ≤ 18 µV FM
	: ≤ 50 µV PO
	: ≤ 178 µV GO

Magnétophone cassette TN301-NY

Numbre de pistes	: 2
Vitesse de défilement	: 4,76 cm/sec
Pleurage et scintillement	: ≤ 0,35%
Diaphonie	: ≥ 35 dB

Amplificateur

Puissance de sortie (D ≤ 10%)	: 2 x ≥ 4,1W/4 Ω
Diaphonie	: ≥ 60 dB
Tonalité	: 9 dB á 10 kHz

CD

Sensibilité d'entrée	: 160 mV
Gamme de fréquences	: ≤ 50 Hz - ≥ 15 kHz
Assourdissement de diaphonie	: ≥ 60 dB

(D) TECHNISCHE DATEN

Allgemeines

Versorgungsspannung	: +14,4 VDC
Abmessungen (B x T x H)	: 178 x 152 x 50 mm
Strom Aufnahme	: < 3A

Radio

UKW	: 87,5 – 108 MHz
MW	: 520 – 1620 kHz
LW (DC102/00, DC112/00R)	: 153 – 281 kHz
FM-ZF	: 10,7 MHz
AM-ZF	: 455 kHz
Begrenzung α – 3 dB	: 14 µV ± 6 µV
Empfindlichkeit für 26 dB S/N	: ≤ 18 µV UKW
	: ≤ 50 µV MW
	: ≤ 178 µV LW

Cassetten spieler TN301-NY

Spurenzahl	: 2
Bandgeschwindigkeit	: 4,76 cm/sec
Gleichlaufschwangkungen	: ≤ 0,35%
Uebersprechen	: ≥ 35 dB

Verstärker

Ausgangsleistung (D ≤ 10%)	: 2 x ≥ 4,1W/4 Ω
Uebersprechen	: ≥ 60 dB
Tone einstellung	: 9 dB bei 10 kHz

CD

CD Eingangsempfindlichkeit	: 160 mV
Frequenzbereich	: ≤ 50 Hz - ≥ 15 kHz
Übersprach-Dämpfung	: ≥ 60 dB

(I) CARATTERISTICHE TECHNICHE

Generalita

Tensione d'alimentazione	: +14,4 VCC
Dimensione	: 178 x 152 x 50 mm
Potenza assorbita	: < 3 A

Radio

FM	: 87,5 – 108 MHz
OM	: 520 – 1620 kHz
OL	: 153 – 281 kHz
IF-FM	: 10,7 MHz
IF-AM	: 455 kHz
Soglia a α – 3 dB	: 14 µV ± 6 µV
Sensibilità a 26 cB S/B	: ≤ 18 µV FM
	: ≤ 50 µV OM
	: ≤ 178 µV OL

Riproduttore di cassette TN301-NY

Numero di piste	: 2
Velocità d'avanzamento	: 4,76 cm/sec
Wow e Flutter	: ≤ 0.35%
Diafonia	: ≥ 35 dB

Amplificatore

Potenza d'uscita (D ≤ 10%)	: 2 x ≥ 4.1W/4 Ω
Diafonia	: ≥ 60 dB
Regolazione tonalità	: 9 dB bij 10 kHz

CD

Sensibilità d'entrata CD	: 160 mV
Gamma di frequenze	: ≤ 50 Hz - ≥ 15 kHz
Assordamento dello diafonia	: ≥ 60 dB

ACCESSORIES

Instruction Manual (DC102/00)	: 4822 736 21795
Instruction Manual (DC102/10)	: 4822 736 21841
Instruction Manual (DC112/00R)	: 4822 736 21796

(GB) ESD

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

(F) ESD

Tout les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(NL) ESD

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

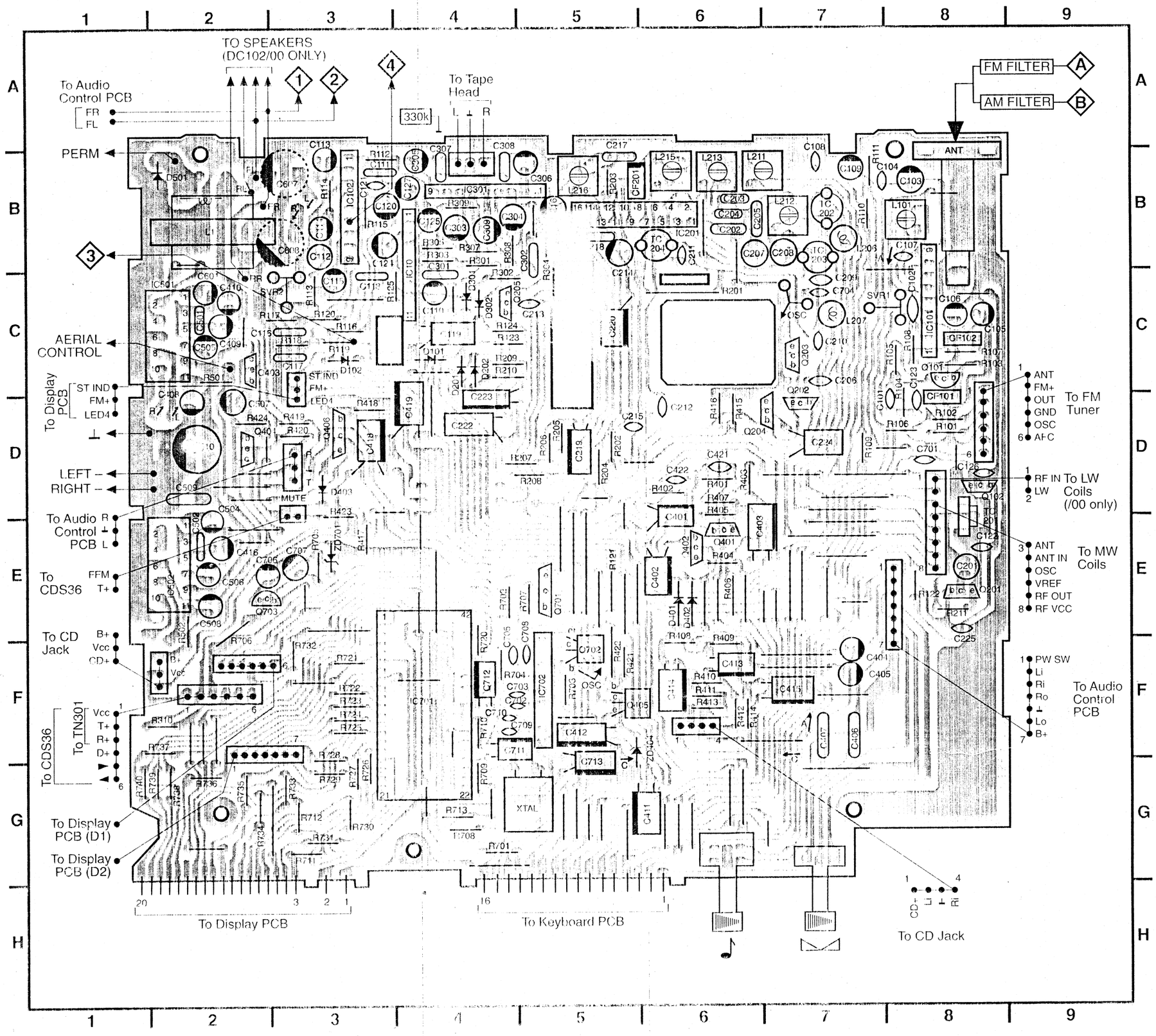
(D) ESD

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD). Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerütes. Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(I) ESD

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD). La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alle loro manipolazione. Durante le riparazione occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

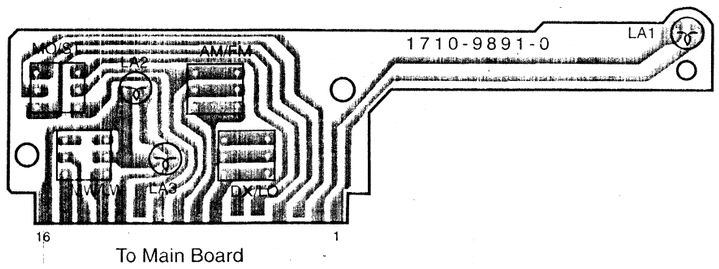
WIRING DIAGRAM



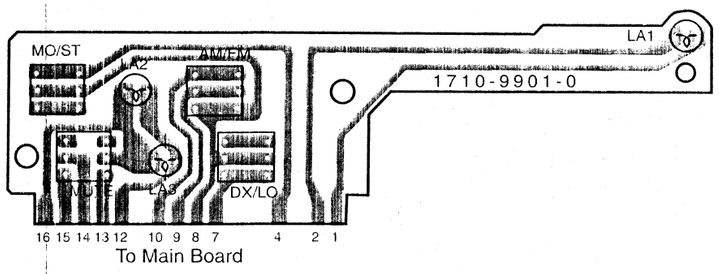
C101	D8	C708	F5	R402	D6
C102	C8	C710	F4	R403	D6
C103	B8	C711	F4	R404	E6
C104	B7	C712	F4	R405	D6
C105	C8	C713	G5	R406	E6
C106	C8	CF101	D8	R407	D6
C107	B8	CF102	C8	R408	F6
C108	B7	CF201	B5	R409	F6
C109	B7	D101	C4	R410	F6
C110	C4	D102	C3	R411	F6
C111	B3	D201	C4	R412	F6
C112	B3	D202	C4	R413	F6
C113	B3	D301	C4	R414	F6
C114	B3	D302	C4	R415	D6
C115	C3	D401	E6	R416	D6
C116	C3	D402	E6	R417	E3
C117	C3	D403	D3	R418	D3
C118	C3	D501	B2	R419	D3
C119	C4	IC10	B4	R420	D3
C120	B3	IC101	C8	R421	F5
C121	B3	IC102	B3	R422	F5
C122	E8	IC201	B5	R424	D2
C123	D8	IC301	B4	R501	C2
C124	B3	IC501	C2	R701	G4
C125	B4	IC502	E2	R702	E4
C126	D8	IC701	F4	R703	F5
C127	B4	IC702	F5	R704	F4
C201	E8	L1	B2	R705	E3
C202	B6	L101	B8	R706	E2
C203	B6	L206	B7	R707	E5
C204	B6	L207	C7	R708	G4
C205	B6	L211	B6	R709	G4
C206	C7	L212	B7	R710	F4
C207	B6	L213	B6	R711	G3
C208	B7	L214	C5	R712	G3
C209	C7	L215	B6	R713	G4
C210	C7	L216	B5	R720	F4
C211	B6	OSC	C7	R721	F3
C212	D6	Q101	C8	R722	F3
C213	C5	Q102	D8	R723	F3
C214	B5	Q201	E8	R724	F3
C215	D5	Q202	D7	R725	F3
C216	B5	Q203	C7	R726	G3
C217	B5	Q204	D7	R727	G3
C218	B5	Q205	C4	R728	F3
C219	D5	Q401	E6	R729	G3
C220	C5	Q402	E6	R730	G3
C221	B5	Q403	C2	R731	G3
C222	D4	Q404	D2	R732	F3
C223	D4	Q405	F5	R733	G3
C224	D7	Q406	D3	R734	G2
C225	E8	Q701	E5	R735	G2
C301	C4	Q702	F5	R736	G2
C302	B5	Q703	E2	R737	F2
C303	B4	R101	D8	R738	G2
C304	B4	R102	D8	R739	G2
C305	B4	R103	C8	R740	G1
C306	B5	R104	D8	SVR1	C8
C307	B4	R105	C8	SVR2	C3
C308	B4	R106	D8	TC201	E8
C309	B4	R107	C8	TC202	B7
C401	E6	R108	C8	TC203	B7
C402	E6	R109	D7	TC204	B6
C403	E6	R110	B7	XTAL	G5
C404	F7	R111	B7	ZD404	F5
C405	F7	R112	B3	ZD701	E3
C406	F7	R113	C3		
C407	F7	R114	B3		
C408	D2	R115	B3		
C409	C2	R116	C3		
C410	C2	R117	C3		
C411	G6	R118	C3		
C412	F5	R119	C3		
C413	F6	R120	C3		
C414	F6	R121	E5		
C415	F7	R122	E8		
C416	E2	R123	C4		
C418	D3	R124	C4		
C419	D4	R125	C4		
C421	D6	R201	C6		
C422	D6	R202	D5		
C501	C2	R203	B5		
C502	E2	R204	D5		
C504	E2	R205	D5		
C505	C2	R206	D5		
C506	E2	R207	D5		
C507	D2	R208	D5		
C508	E2	R209	C4		
C509	D2	R210	C4		
C510	D2	R211	E8		
C601	C2	R301	B4		
C607	B3	R302	C4		
C608	B3	R303	B4		
C700	F4	R304	B5		
C701	D8	R305	B4		
C702	F4	R306	B5		
C703	F4	R307	B4		
C704	C7	R308	B4		
C705	F4	R309	B4		
C706	E2	R310	F2		
C707	E3	R401	D6		

MODULE PCB'S

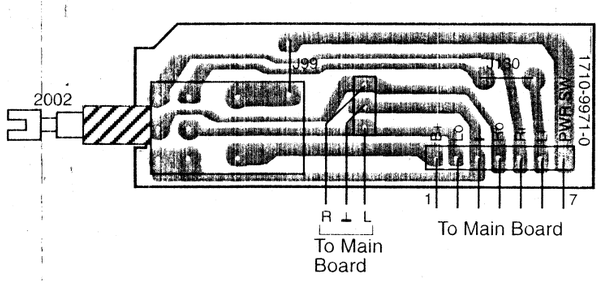
Keyboard PCB (/00, /00R)



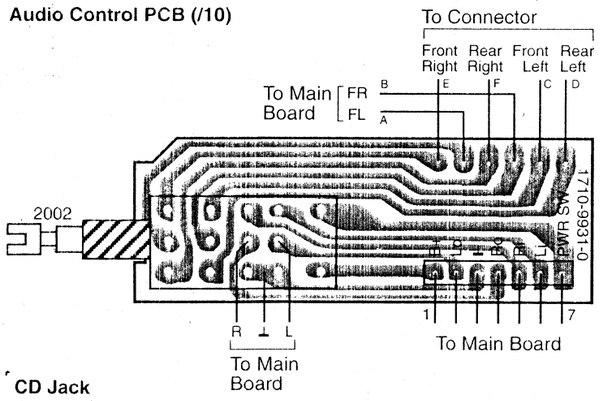
Keyboard PCB (/10)



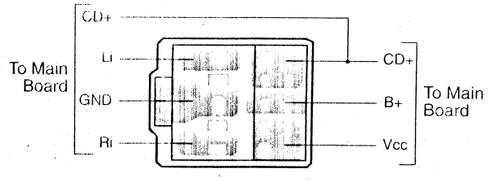
Audio Control PCB (/00, /00R)



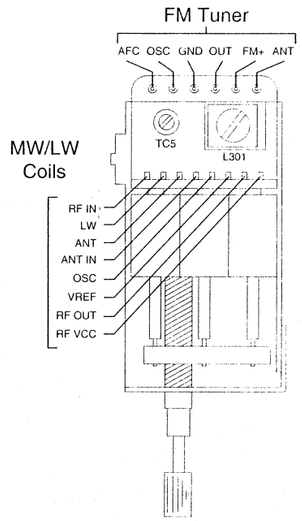
Audio Control PCB (/10)



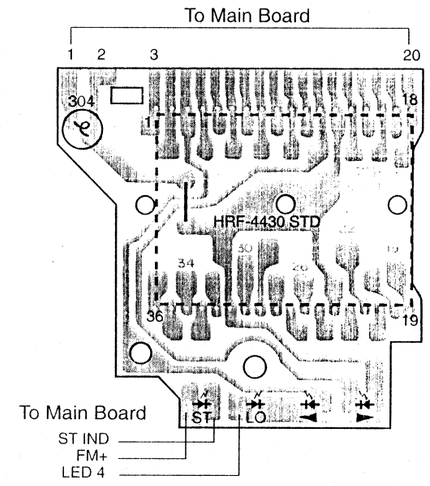
CD Jack



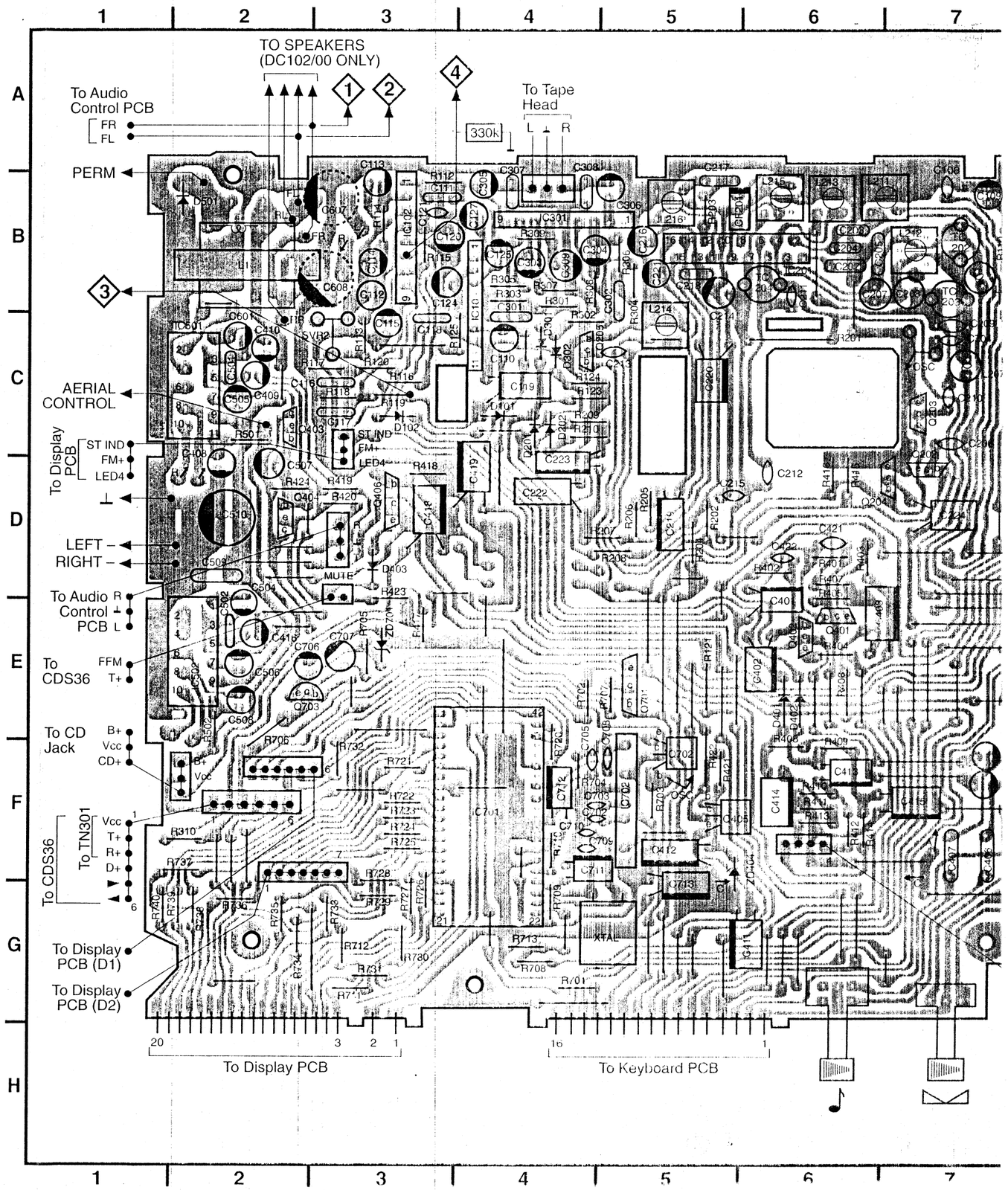
Tuner Unit



Display PCB



WIRING DIAGRAM



CHECKS

For more information see general information "General alignment procedures for car radio".

Check	SK				Setting of Controls	
α – 3 dB	FM	98 MHz : 1 mV f mod = 1 kHz Δf = 22.5 kHz	A		**Mute** off	① 0 dB (≡ 1.4 V)
		98 MHz : 20 µV f mod = 1 kHz Δf = 22.5 kHz			**Mute** on	① -3 dB
Crosstalk	FM	98 MHz : 2 mV (L + R)	A		◿+◺	① R & ② L = 0 dB (≡ 2 V)
		98 MHz : 2 mV Stereo – R				① R – ② L ≥ 26 dB
FM Mute	FM	98 MHz, 1 mV	A		◿	① 0 dB (≡ 1.4 V)
		No signal				① ≥ 24 dB
26 dB S/N	FM	98 MHz : 8 µV f mod = 1 kHz Δf = 22.5 kHz	A		◿	① 0 dB (≡ 1.4 V)
		98 MHz : 8 µV without mod.				① ≤ – 26 dB
	MW	999 kHz : 50 µV 1 kHz, 30% AM	B		◿	① 0 dB (≡ 1.4 V)
		999 kHz : 50 µV without mod.				① ≤ – 26 dB
	LW	207 kHz : 178 µV 1 kHz, 30% AM	B		◿	① 0 dB (≡ 1.4 V)
		207 kHz : 178 µV without mod.				① ≤ – 26 dB
Aerial sensitivity	MW	999 kHz : 6 µV 1 kHz, 30% AM	B		max.	① 1.4 V~ (≡ 0.5 W)
	LW	207 kHz : 20 µV 1 kHz, 30% AM				① 1.4 V~ (≡ 0.5 W)

ELECTRICAL PARTS LIST

For other resistors/Capacitors see standard components catalogue 4822 736 53404.

C107	4822 122 32185	0/60 10pF/0.5
C126	4822 122 31069	0/60 39pF 5% 1) 3)
C207	4822 126 12822	0/60 180pF 5%
C211	5322 126 12182	0/60 150pF 50%
C212	4822 126 12407	0/30 470pF
C421	5322 122 32072	0/60 33pF 5%
C422	5322 122 32072	0/60 33pF 5%
TC201	4822 125 60199	100 pF
TC202	4822 125 50377	60pF
TC203	4822 125 50377	60pF 1) 3)
TC204	4822 125 50377	60pF
R425	4822 100 12049	BALANCE
R426	4822 100 12051	TONE
SVR1	4822 100 10035	10k
SVR2	4822 101 30827	5k
L101	4822 157 70732	FM DETECT
L206	4822 157 63565	FERR.COIL 56UH
L207	4822 157 70742	4.7µH
L211	4822 157 70733	LW ANT 1) 3)
L212	4822 157 70735	AM OSC
L213	4822 157 70734	LW OSC 1) 3)
L214	4822 157 70737	LW RF 1) 3)
L215	4822 157 70736	AM IF
L216	4822 156 21679	450 kHz

Q101	4822 130 63385	KTC 31920
Q102	4822 130 63384	C110M
Q201	4822 130 63384	C110M 1) 3)
Q202	4822 130 63384	C110M 1) 3)
Q203	4822 130 63384	C110M 1) 3)
Q204	4822 130 63384	C110M 1) 3)
Q205	4822 130 63384	C110M 1) 3)
Q401	4822 130 63387	C3199Y
Q402	4822 130 63387	C3199Y
Q403	4822 130 63384	C110M
Q404	4822 130 63384	C110M
Q405	4822 130 63386	3202Y
Q406	4822 130 63387	C3199Y
IC101	4822 209 32557	KIA 6003S FM/IF
IC102	4822 209 32558	KIA 6043S FM/MPX
IC201	4822 209 81217	LA1130
IC301	4822 209 32567	KIA 6225S
IC501	4822 209 32566	TDA 7350A

MISCELLANEOUS

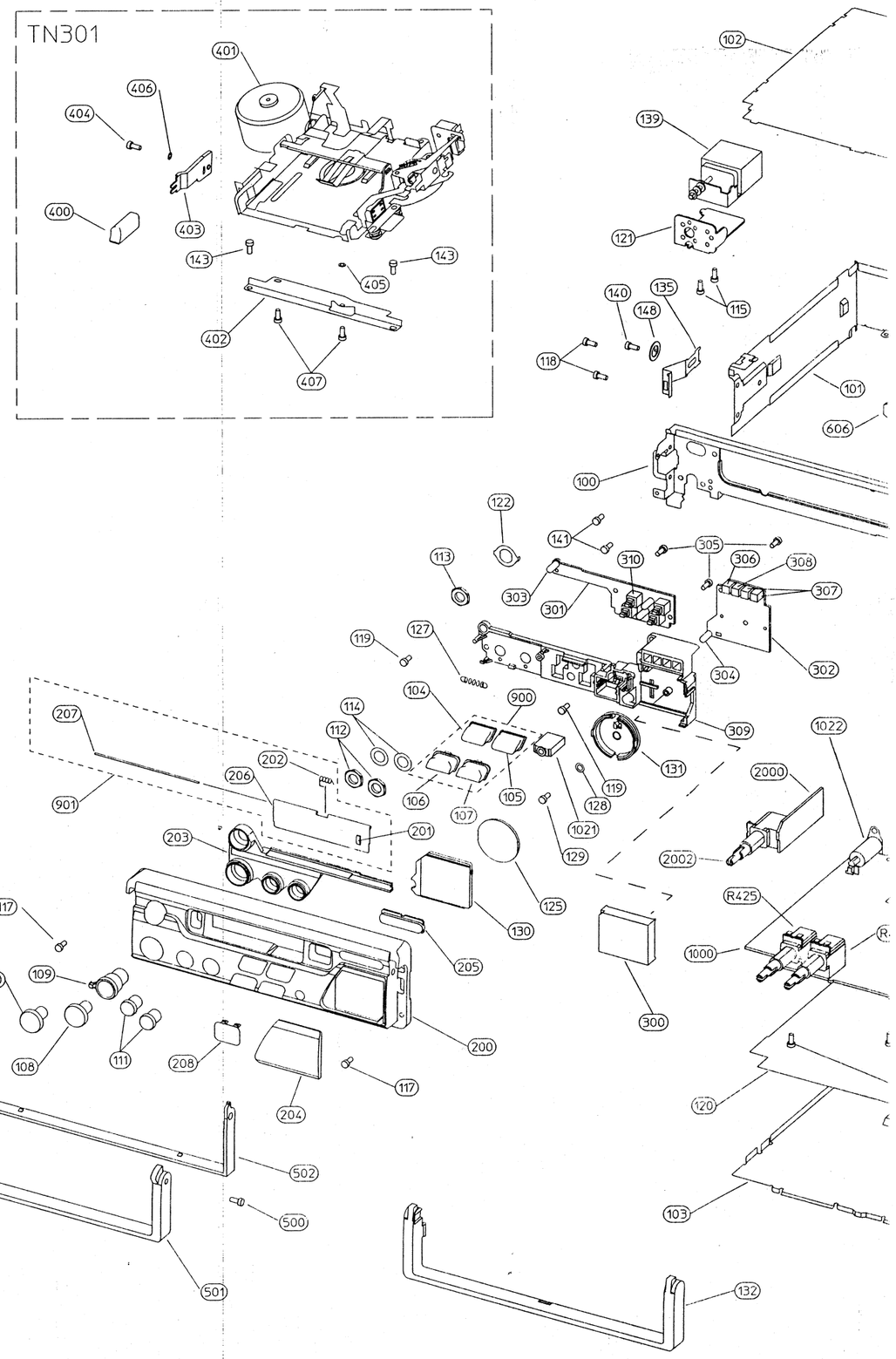
CF101	4822 242 70612	SFE10.7MS3Z
CF102	4822 242 70612	SFE10.7MS3Z
CF201	4822 242 81539	455 kHz

NOTES: 1) FOR DC102/00 ONLY
2) FOR DC102/10 ONLY
3) FOR DC112/00R ONLY

MECHANICAL PARTS LIST & EXPLODED VIEW

108	4822 413 31766	1)
108	4822 413 31762	2) 3)
109	4822 413 31763	2) 3)
110	4822 413 31764	
111	4822 413 31765	
127	4822 492 33407	
139	4822 210 10563	
400	4822 410 62733	
401	4822 701 13521	
403	4822 404 21263	
608	4822 290 61183	3)
900	4822 410 62749	1) 3)
900	4822 410 62819	2)
901	4822 443 64001	1) 2)
901	4822 443 64002	3)
902	4822 691 10407	3)
1014	4822 321 62119	1) 2)
1015	4822 290 61182	3)
1021	4822 267 31682	
2002	4822 100 30176	1)
2002	4822 100 30175	2) 3)
3200	4822 459 50792	1) 2)
3200	4822 459 50793	3)
3300	4822 214 52102	1) 3)
3300	4822 214 52112	2)
3500	4822 498 40595	3)
STRING	4822 321 30213	

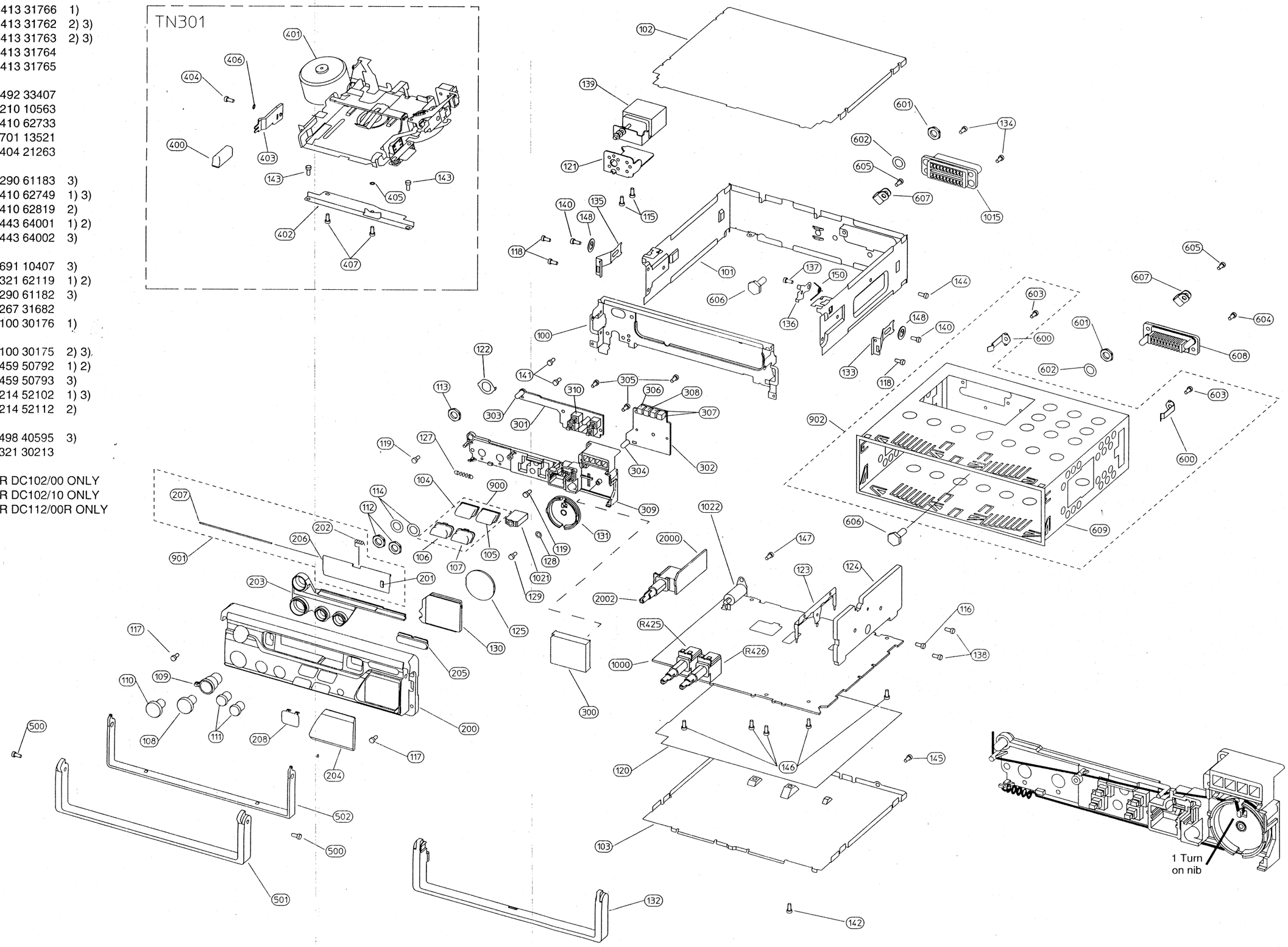
NOTES: 1) FOR DC102/00 ONLY
2) FOR DC102/10 ONLY
3) FOR DC112/00R ONLY



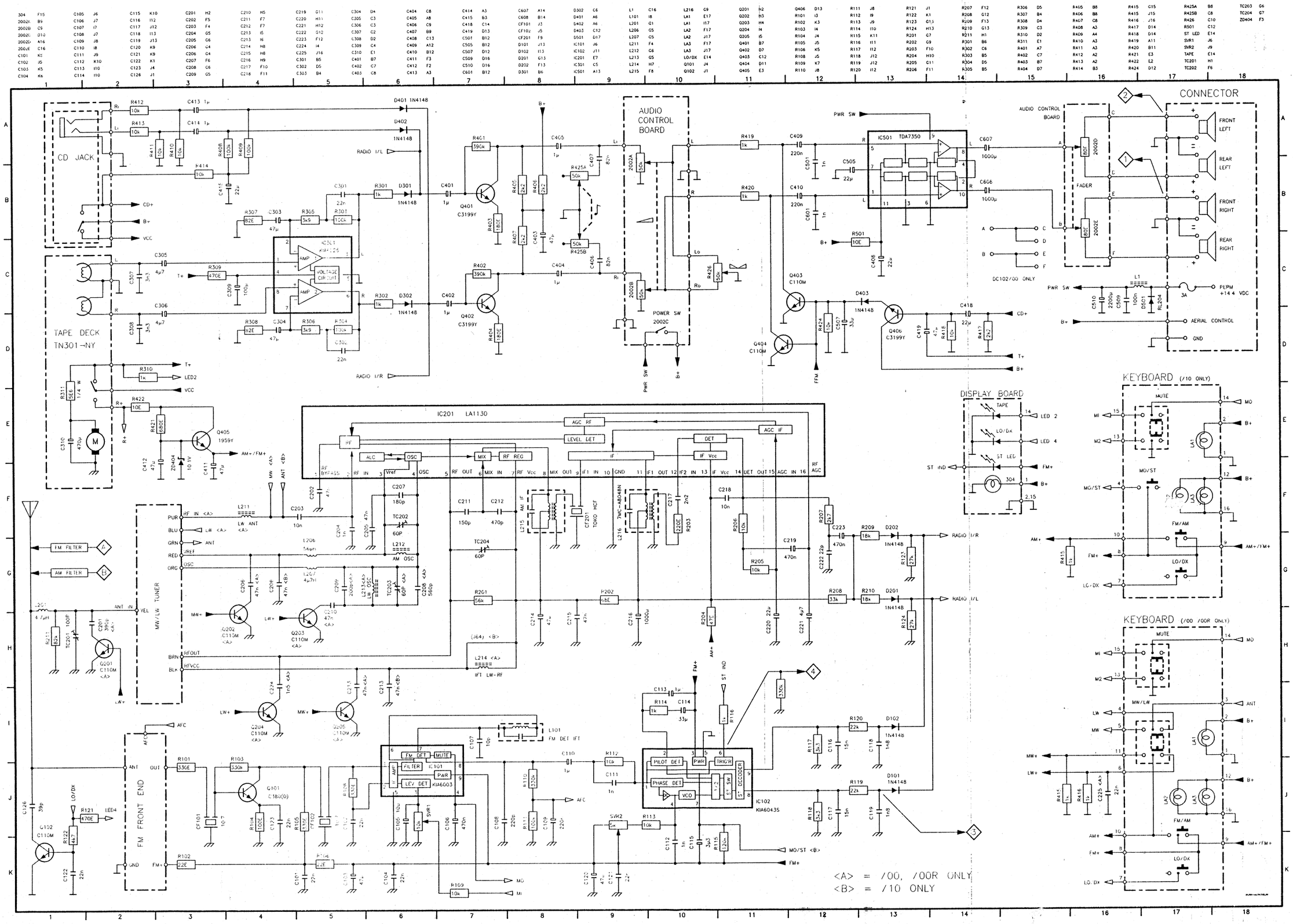
MECHANICAL PARTS LIST & EXPLODED VIEW

108	4822 413 31766	1)
108	4822 413 31762	2) 3)
109	4822 413 31763	2) 3)
110	4822 413 31764	
111	4822 413 31765	
127	4822 492 33407	
139	4822 210 10563	
400	4822 410 62733	
401	4822 701 13521	
403	4822 404 21263	
608	4822 290 61183	3)
900	4822 410 62749	1) 3)
900	4822 410 62819	2)
901	4822 443 64001	1) 2)
901	4822 443 64002	3)
902	4822 691 10407	3)
1014	4822 321 62119	1) 2)
1015	4822 290 61182	3)
1021	4822 267 31682	
2002	4822 100 30176	1)
2002	4822 100 30175	2) 3)
3200	4822 459 50792	1) 2)
3200	4822 459 50793	3)
3300	4822 214 52102	1) 3)
3300	4822 214 52112	2)
3500	4822 498 40595	3)
STRING	4822 321 30213	

NOTES: 1) FOR DC102/00 ONLY
2) FOR DC102/10 ONLY
3) FOR DC112/00R ONLY



ELECTRICAL CIRCUIT DIAGRAM



SURVE

IC101 KI

1 = 1.9
2 = 1.9
3 = 0.71
= 0.6
4 = 0.24
= 1.1
5 = GND
6 = 3.9
7 = 4.01
8 = 4.92
9 = 9.6

IC102 KI

1 = 3.54
2 = 8.28
3 = 9.66
4 = 8.89
5 = GND
6 = 9.05
7 = 9.09
8 = 3.92
9 = 3.94

IC201 LA

1 = 2.08
2 = 2.67
3 = 5.66
4 = 5.66
5 = 8.39

ALIGNM
For mor

Alig
F
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LW
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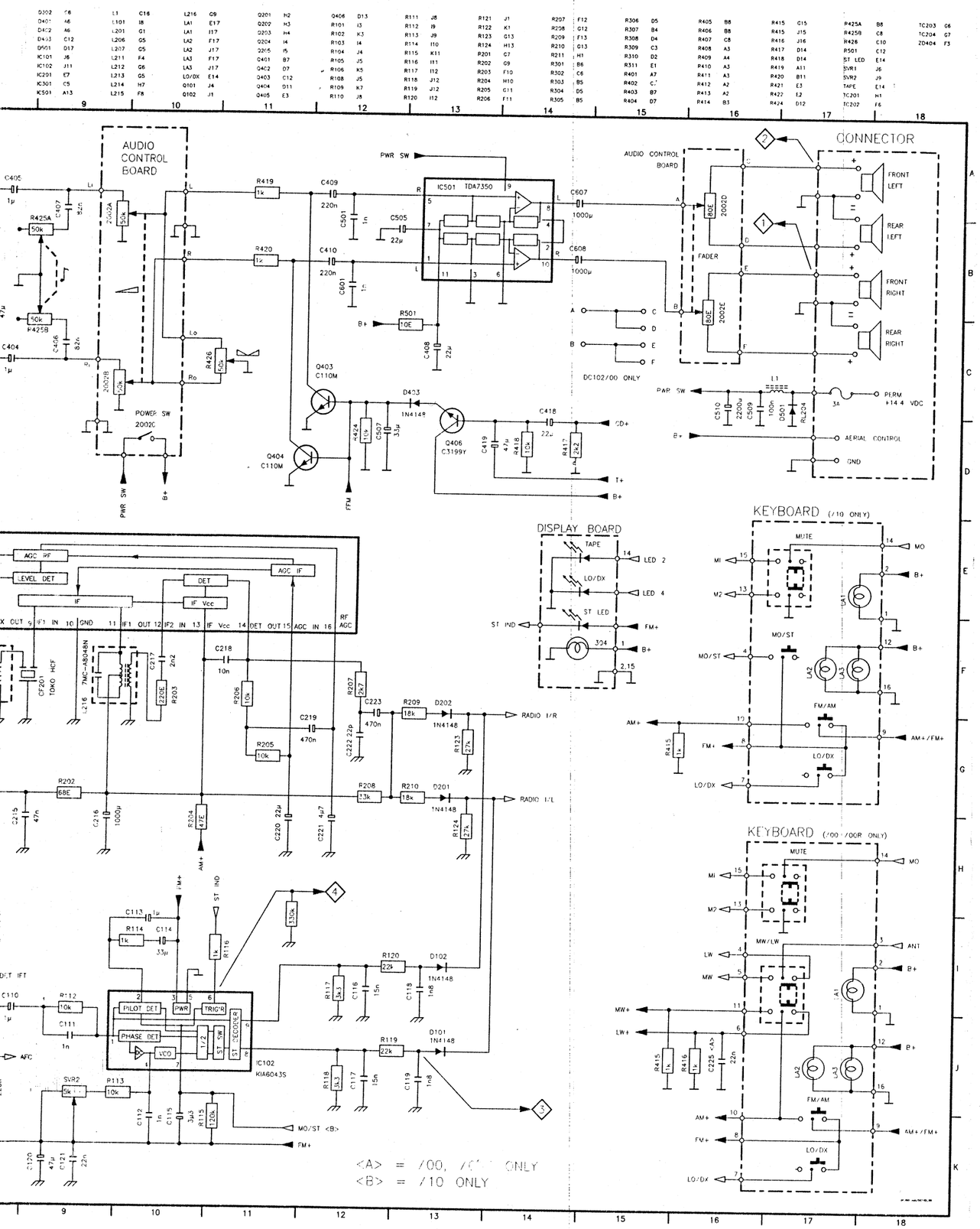

SURVEY OF DC VOLTAGES

IC101 KIA6003

1 = 1.96 V
2 = 1.96 V
3 = 0.71 V
= 0.69 V (MUTE ON)
4 = 0.24 V
= 1.15 V (MUTE ON)
5 = GND
6 = 3.99 V
7 = 4.01 V
8 = 4.92 V
9 = 9.68 V

IC102 KIA 6043S

1 = 3.54 V
2 = 8.28 V
3 = 9.68 V
4 = 8.89 V
5 = GND
6 = 9.05 V
7 = 9.09 V
8 = 3.92 V
9 = 3.94 V

IC201 LA1130

1 = 2.08 V
2 = 2.67 V
3 = 5.66 V
4 = 5.66 V
5 = 8.39 V
6 = 1.99 V
7 = 8.4 V
8 = 8.4 V
9 = 3.99 V
10 = GND
11 = 8.85 V
12 = 0.69 V
13 = 8.85 V
14 = 2.01 V
= 1.98 V (LW)
15 = 1.99 V
= 1.95 V (LW)
16 = 5.56 V

IC301 KIA 6225

1 = 1.38 V
2 = 0.77 V
3 = 2.8 V
4 = 10.47 V
5 = GND
6 = 2.8 V
7 = 0.77 V
8 = 1.38 V

IC501 TDA7350A

1 = 0.21 V
2 = 0.21 V
3 = GND
4 = 0.21 V
5 = 0.21 V
6 = GND
7 = 6.07 V
8 = 6 V
9 = 12 V
10 = 5.99 V
11 = 11.95 V

Q101 C380(0)

e = 0.24 V
b = 0.93 V
c = 8.66 V

Q102 C110M

e = 0 V
b = 0 V
= 4.7 V (LO ON)
c = 0 V

Q201 C110M

e = 0 V
b = 0 V
= 9.67 V (LW)
c = 0 V

Q202 C110M

e = 0 V
b = 9.67 V
= 0 V (LW)
c = 0 V

Q203 C110M

e = 0 V
b = 0 V
= 9.67 V (LW)
c = 0 V

Q204 C110M

e = 0 V
b = 0 V
= 9.67 V (LW)
c = 0 V

Q205 C110M

e = 0 V
b = 9.67 V
= 0 V (LW)
c = 0 V

Q401 C3199Y

e = 0.22 V
b = 0.87 V
c = 3.92 V

Q402 C3199Y

e = 0.22 V
b = 0.87 V
c = 3.92 V

Q403 C110M

e = 0 V
b = 0 V
c = 0 V

Q404 C110M

e = 0 V
b = 0 V
c = 0 V

Q405 1959Y

e = 9.68 V
b = 10.37 V
c = 11.61 V

Q406 1959Y

e = 0 V
b = 0 V
c = 11.98 V

TUNER (CMT 107FL/WZ)

1 = 0 V
2 = 9.27 V
3 = 0 V
4 = GND
5 = 1.11 V

ALIGNMENTS

For more information see general information "General alignment procedures for car radio".

Alignment	SK		◇	▭		○
FM IF	FM			10.7 MHz	L101 L301	◇3 Symm. + Linear
FM RF	FM	87.3 MHz f mod. = 1 kHz 20 dBµV	◇A	▭	TC5	◇1 Max. ~
FM VCO	FM				SVR2	◇4 38 kHz ± 15 Hz
α – 3 dB	FM	98 MHz f mod = 1 kHz 60 dBµV, **MUTE** off	◇A	▭	◿	◇1 0 dB (≡ 1.4 V)
		98 MHz f mod = 1 kHz 26 dBµV, **MUTE** on	◇A	▭	SVR1	◇1 – 3 dB
AM IF	MW	600 kHz 1 kHz, 30% AM	◇B	▭	L215 L216	◇1 Max. ~
MW Range	MW	510 kHz 1 kHz, 30% AM	◇B	min.	L212	◇1 Max. ~
		1630 kHz 1 kHz, 30% AM	◇B	max.	TC202	◇1 Max. ~
MW RF	MW	1400 kHz 1 kHz, 30% AM	◇B	▭	TC201 TC204	◇1 Max. ~
LW Range	LW	145 kHz 1 kHz, 30% AM	◇B	min.	L213	◇1 Max. ~
		305 kHz 1 kHz, 30% AM	◇B	max.	TC203	◇1 Max. ~
LW RF	LW	270 kHz 1 kHz, 30% AM	◇B	▭	L214	◇1 Max. ~
		220 kHz 1 kHz, 30% AM	◇B	▭	L211	◇1 Max. ~